UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P O Box 1450
Alexandria, Virginia 22313-1450
www uspto gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,903	03/16/2004	James Scott Rhodes JR.	PCCR122524	3403

26389 7590 06/17/2009
CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC
1420 FIFTH AVENUE
SUITE 2800
SEATTLE, WA 98101-2347

EXAMINER	
JANAKIRAMAN, NITHYA	

ART UNIT	PAPER NUMBER
2123	

MAIL DATE	DELIVERY MODE
06/17/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/801,903	RHODES ET AL.	
	Examiner	Art Unit	
	NITHYA JANAKIRAMAN	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-24,27-30,33-38,41 and 42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-24,27-30,33-38,41 and 42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/9/09 has been entered. Claims 1-8, 10-24, 27-30, 33-38, and 41-42.

Response to Arguments- 35 USC § 103

1. Applicant's arguments filed 4/9/09 have been fully considered but they are not persuasive.

Argument 1:

2. Applicant argues on pages 4-6 that Koenig does not teach "obtaining processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle, wherein the processing data for each of the plurality of components includes location information corresponding to a logical starting position for attempting to locate a component on the frame".

3. Koenig's column 2, lines 40-45 states "analysis is carried out to secure locations and cross-sections of performance for each of the components". Column 6 states "The beam model analysis provides the locations and dimensions of the various components for the body-in-white". Column 11, lines 38-44: "Figure 3 shows the function and position of the pass-through beam "; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent

obtaining of a position, which would necessarily be a starting position, as other positions may be used in the modification process. Each iteration potentially provides a new location for a component.

Argument 2:

4. Applicant argues on page 6 that Koenig does not teach "determining whether the selected component at the current position coincides with the hole in the frame" until "the current position coincides with a hole in the frame through which the selected component may be attached to the frame".

5. Koenig, column 12, lines 29-31 states "The dash panel insert **114** also has opening **113** for positioning of the steering column mechanism". Opening 113 is clearly depicted in Figure 8 as a hole. Koenig teaches the reconfiguration of components if the model does not conform to the structural performance targets: Figure 2, **63**, **68**, **70**. This teaching, in conjunction with the interference checking of Hall teaches an iterative design process, which redesigns and modifies a model in order to compensate for component interference. In this instance, it would necessarily include choosing the next position to place a component.

Argument 3:

6. Applicant argues on page 7 that Hill does not teach "two or more sets of processing data for a selected component".

7. Hill is being utilized for traversing a tree structure, as shown in Figure 2. The invention of Koenig, Hall, Bowman, Hill are necessarily, inherently require "processing data", as "processing data" is merely software instructions for the execution of the various method steps.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-8, 10, 13, 15-24, 27, and 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,729,463 Koenig et al. (hereinafter Koenig) in view of US Patent 6,487,525, Hall et al. (hereinafter Hall), further in view of "Formalizing the Design, Evaluation, and Application of Interaction Techniques for Immersive Virtual Environments" (hereinafter Bowman).

9. Koenig teaches a system for designing a vehicle body using tessellated representations of components and location information (Abstract). However, Koenig fails to teach the detection and avoidance of component interference, or the having a range of locations to position a component.

10. Hall teaches the design of a vehicle HVAC air handling assembly, wherein the vehicle takes into account other vehicle systems, and determines a sufficient dimensional distance or clearance between them (see columns 7, 8).

11. Bowman teaches specifying a range of object positions and orientations (see page 48).

12. Koenig, Hall, and Bowman are analogous art because they are both related to the field of computer aided design.

13. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the interference detection of Hall with the vehicle design

system of Koenig, motivated by the desire to "ensure that it is spatially compatible with a particular environment, while still complying with predetermined functional criteria" (see Hall, column 1, lines 31-34). It also would have been obvious to combine the range of additional component positions of Bowman with the vehicle design system of Koenig, because of the desire for "setting the position and orientation (and possibly other characteristics such as scale or shape) or a selected object" which is clearly desirable to one of ordinary skill in the art of computer aided design.

14. Regarding claim 1 (17, and 33), Koenig, Hall, and Bowman teach:

A method for generating frame designs for manufacturing a vehicle *(see Koenig, column 1, lines 50-61)*, the method comprising:

obtaining a specification for a plurality of components to be mounted on a frame of a vehicle *(see Hall, column 6, lines 7-15)*,

obtaining processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle, wherein the processing data for each of the plurality of components includes location information corresponding to a logical starting position for attempting to locate a component on the frame *(Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a **starting** position, as other positions may be used in the modification process)* and a range of additional positions to locate the component *(Bowman, page 48, "specify a range of object positions and orientations")* and three-dimensional data corresponding to a tessellated representation of the component *(Koenig, Tessellation is defined as being marked with checks, squares, triangles, or the like, as clearly shown in Figure 3)*;

for each component of the plurality of components:
selecting the logical starting position as the current position for the selected component; and repeatedly *(Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a **starting** position, as other positions may be used in the modification process)*:

determining whether the selected component at the current position coincides with a hole in the

frame through which the selected component may be attached to the frame *(Koenig, column 12, lines 29-31 states "The dash panel insert **114** also has opening **113** for positioning of the steering column mechanism", and column 13, lines 14-16, "The opening **140** also provides access to allow welding of the members **24** and **26** along their end flanges")*, and whether the tessellated representation of the selected component located at a current position interferes *(Hall, column 4, lines 1-3 "interference checking")* with the tessellated representation of any other component previously configured to the frame *(Koenig: Tessellation is defined as being marked with checks, squares, triangles, or the like, as clearly shown in Figure 3)*; and

selecting a next position in the range of additional positions if the selected component does not coincide with a hole through which the selected component may be attached to the frame, or if the tessellated representation of the selected component located at a current position interferes *(Hall, column 7, lines 1-9)* with the tessellated representation of any other component already configured to the frame *(Koenig teaches the reconfiguration of components if the model does not conform to the structural performance targets: Figure 2, **63**, **68**, **70**. This teaching, in conjunction with the interference checking of Hall teaches an iterative design process, which redesigns and modifies a model in order to compensate for component interference. In this instance, it would necessarily include choosing the next position to place a component)*;

until the current position coincides with a hole in the frame through which the selected component may be attached to the frame and the tessellated representation of the selected component located at a current position does not interfere with the tessellated representation of any other component already configured to the frame *(Koenig teaches the reconfiguration of components if the model does not conform to the structural performance targets: Figure 2, **63**, **68**, **70**. This teaching, in conjunction with the interference checking of Hall teaches an iterative design process, which redesigns and modifies a model in order to compensate for component interference. In this instance, it would necessarily include choosing the next position to place a component)*;

configuring the selected component to the frame at the position corresponding to a matching hole *(Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a **starting** position, as other positions may be used in the modification process)*; and

generating a frame design corresponding to the configured positions for each of the plurality of components *(Koenig, Figure 2, "Final Design")*.

15. Regarding claim 2 (18, and 34), Koenig, Hall, and Bowman teach:

The method as recited in claim 1, wherein determining whether the tessellated representation *(see Koenig, Figure 7)* of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame *(see Hall,*

column 7, lines 1-9) includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame *(see Hall, column 7, lines 32-42)*.

16. Regarding claim 3 (and 19), Koenig, Hall, and Bowman teach:

The method as recited in claim 1, wherein determining whether the tessellated representation of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame includes determining whether the selected component located at the current position is located within another configured component *(see Hall column 7, lines 1-9)*.

17. Regarding claim 4 (and 20), Koenig, Hall, and Bowman teach:

The method as recited in claim 1, wherein obtaining a specification for the plurality of components to be mounted on a frame of a vehicle includes obtaining a list of required components from a user interface *(see Hall, column 6, lines 7-15)*.

18. Regarding claim 5 (21, and 35), Koenig, Hall, and Bowman teach:

The method as recited in claim 1, wherein the logical starting position corresponds to a dimensional measurement relative to the frame *(see Hall, lines 62-67)*.

19. Regarding claim 6 (and 22), Koenig, Hall, and Bowman teach:

The method as recited in claim 1, wherein the logical starting position corresponds to a dimensional measurement relative to another component already configured to the frame *(see Hall, column 8, lines 1-9)*.

20. Regarding claim 7 (23, and 37), Koenig, Hall, and Bowman teach:

The method as recited in claim 1, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position *(see Hall, column 7, lines 62-67)*.

21. Regarding claim 8 (24, and 38), Koenig, Hall, and Bowman teach:

The method as recited in claim 7, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a second direction from the logical starting position *(see Hall, column 7, lines 62-67).*

22. Regarding claim 10, Koenig, Hall, and Bowman teach:

The method as recited in claim 1, wherein each of the plurality of components corresponds to plurality of pieces of geometry *(see Koenig, column 2, lines 43-56).*

23. Regarding claim 13 (and 27), Koenig, Hall, and Bowman teach:

The method as recited in claim 1, wherein generating a frame design corresponding to the configured positions for each of the plurality of components includes generating a three-dimensional representation of the frame design *(see Koenig, column 2, lines 24-34).*

24. Regarding claim 15, Koenig, Hall, and Bowman teach:

A computer-readable medium having computer-executable instructions for performing the method recited in claim 1 *(see Koenig, column 2, lines 42-46).*

25. Regarding claim 16, Koenig, Hall, and Bowman teach:

A computer system having a processor, a memory and an operating environment, the computer system for performing the method recited in claim 1 *(see Koenig, column 2, lines 42-46).*

26. Regarding claim 36, Koenig, Hall, and Bowman teach:

The computer-readable medium as recited in claim 33, wherein the logical starting position corresponds to a dimensional measurement relative to another component *(see Hall, column 8, lines 1-9).*

27. Regarding claim 37, Koenig, Hall, and Bowman teach:

The computer-readable medium as recited in claim 33, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position *(see Hall, column 7, lines 62-67).*

28. Claims 11, 12, 14, 28-30, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koenig, in view of Hall, further in view of Bowman, further in view of Hill.

29. Koenig as modified by Bowman and Hall teaches a system for designing a vehicle body using tessellated representations of components and location information (see column 1). However, Koenig as modified by Bowman and Hall fails to teach traversing a tree structure to select the next course of action, or the usage of generating a text file.

30. Hill teaches method for the design and manufacturing of vehicles using process data structures (see Hill, column 1, lines 43-49) and textual descriptions of instructions (see Hill, column 4, lines 32-35).

31. Koenig as modified by Bowman and Hall, and Hill are analogous art because they are all related to computer aided design.

32. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the system for designing a vehicle body of Koenig as modified by Bowman and Hall with the data structures and text files of Hill motivated by the desire to "indicate the assembly steps…contained within the manufacturing data structure" (see Hill, column 1), and to "provide specific instructions for personnel" (see Hill, column 4).

33. Regarding claim 11 (and 29), Koenig, Hall, Bowman and Hill teach:

The method as recited in Claim 1, wherein obtaining processing data corresponding to the plurality of components includes traversing a tree structure to select a set of processing data *(see Hill, Figure 3)*.

34. Regarding claim 12 (and 30), Koenig, Hall, Bowman and Hill teach:

The method as recited in claim 11, wherein the tree structure includes two or more sets of processing data for a selected component and wherein setting a next position in the range of additional positions defined in the processing data includes selecting a new set of processing data and obtaining a next position *(see Hill, column 1, lines 43-49).*

35. Regarding claim 14 (and 28), Koenig, Hall, Bowman and Hill teach:

The method as recited in claim 1, wherein generating a frame design corresponding to the configured positions for each of the plurality of components includes generating a textual file of the frame design *(see Hill, column 4, lines 32-35).*

36. Regarding claim 41, Koenig, Hall, Bowman and Hill teach:

The computer-readable medium as recited in Claim 33, wherein the processing module selects the processing data by traversing a tree structure *(see Hill, Figure 3).*

37. Regarding claim 42, Koenig, Hall, Bowman and Hill teach:

The computer-readable medium as recited in Claim 41, wherein the tree structure includes two or more set of processing data for a selected component and wherein the configuration module selects a next position in the range of additional positions defined in the processing data by selecting a new set of processing data from the processing module and obtaining a next position for the component from the new set of processing data *(see Hill, column 1, lines 3-49).*

- The Examiner would like to point out that while only certain citations have been given, Applicant should consider the reference in it entirety.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NITHYA JANAKIRAMAN whose telephone number is

(571)270-1003. The examiner can normally be reached on Monday-Thursday, 8:00am-5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571)272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nithya Janakiraman/
Examiner, Art Unit 2123

/Paul L Rodriguez/
Supervisory Patent Examiner,
Art Unit 2123